

In The Abstract

Please replace the Abstract paragraph on page 12, lines 1-12 as shown below:

b6
A method of attaching a head rest guide tube to a seat back frame having an aperture extending therethrough includes inserting the guide tube into the aperture, and swaging the guide tube to form a swaged portion engaged with the seat back frame to thereby secure the guide tube to the seat back frame.

A marked up version of these changes is attached to this Amendment.

Remarks

Original claims 1-12 have been deleted, and new claims 14-21 have been added. Furthermore, the Disclosure Of The Invention section and the Abstract have been amended to be consistent with the new claims.

Respectfully submitted,

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By


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Attachment

VERSION WITH MARKINGS TO SHOW CHANGES MADE THE SPECIFICATION

Please replace the Specification paragraph on page 1, lines 3-5 as shown below.

[The present invention relates generally to motor vehicle seats, and more particularly to a seat back frame] The invention relates to a method of attaching a head rest guide tube to a seat back frame, and to an assembly produced by the method.

Please replace the Specification paragraphs on page 1, lines 19-27 and continuing to page 2, lines 1-5 as shown below:

The prior art bent tubes are deformed in the upper bending corners and have thin walls in the attachment areas, which results in a high shear stress. The thin attachment areas require a splint or insert to be inserted therein to reduce the shear stress. Furthermore, for attachment of the head rest guide tubes, apertures must be bored through both sides of the back frame tube, which may be awkward and may unnecessarily increase manufacturing costs. A prior method for securing the head rest guide tubes to the back frame includes welding the head rest guide tubes to the back frame.

[It is desirable to provide a seat assembly in which localized heat treatment is not required prior to bending the seat back frame, heat treatment after frame completion is not rigid, and in which structural integrity is enhanced and manufacturing costs are reduced.]

Please replace the Specification paragraphs beginning on page 2, lines 7-29 and continuing to page 3, lines 1-26 as shown below:

[The present invention overcomes the above-referenced shortcomings of prior art seat assemblies by providing a seat back frame in the form of an extruded solid aluminum I-beam which does not require heat treatment for bending, localized heat treatment prior to bending, or post-bending heat treatment.

More specifically, the present invention provides an apparatus for supporting a seat back in a vehicle, comprising an aluminum I-beam formed in a generally U-shaped configuration, and having opposing ends supported with respect to the vehicle. The I-beam forms a seat back frame for supporting a seat back.

The present invention further provides a method of manufacturing a vehicle seat back frame, comprising the following steps: a) extruding an aluminum I-beam comprising a center support positioned between first and second flanges extending the length of the I-beam; b) cutting the I-beam to a desired length; c) age-hardening the I-beam; and d) bending the I-beam into a substantially U-shaped configuration, such that the center support and first and second flanges cooperate to form an inwardly-facing channel and an outwardly-facing channel.

In a preferred embodiment, the assembly includes a cross-member extending across the U-shaped I-beam, with the cross-member attached to the I-beam at opposing ends by a pair of swaged nuts.

The present invention also provides a method for attaching a head rest guide tube to a seat back frame having a substantially flat section with an aperture formed therethrough. The method comprises inserting the guide tube into the aperture and swaging (also termed "swedging") the guide tube on both sides of the flat section whereby to secure the guide tube within the aperture.

Accordingly, an object of the present invention is to provide an aluminum seat back frame which does not require specialized heat treatment for bending.

Another object of the present invention is to provide a vehicle seat back frame with improved structural integrity.

Yet another object of the present invention is to provide a vehicle seat back frame with reduced manufacturing costs.

The above objects and other objects, features, and advantages of the present invention are readily apparent from the following detailed description of the best modes for carrying out the invention when taken in connection with the accompanying drawings.]

Under the invention, a method is provided for attaching a head rest guide tube to a seat back frame including a substantially flat section having opposing sides with an aperture formed therethrough. The method includes inserting the guide tube into the aperture, and swaging the guide tube over the flat section, whereby to secure the guide tube within the aperture.

Further under the invention, a method of attaching a head rest guide tube to a seat back frame having an aperture extending therethrough includes inserting the guide tube into the aperture, and swaging the guide tube to form a swaged portion engaged with the seat back frame to thereby secure the guide tube to the seat back frame.

Advantageously, under the method of the invention, the guide tube may be attached to the seat back frame without welding.

The method described above may also include swaging the guide tube to form an additional swaged portion on the guide tube, wherein the additional swaged portion cooperates with the swaged portion to secure the guide tube to the seat back frame. Furthermore, the step of swaging the guide tube to form an additional swaged portion may be performed prior to the step of inserting the guide tube into the aperture.

Further under the invention, a vehicle seat assembly includes a seat back frame having an aperture extending therethrough, and a headrest guide tube disposed in the aperture. The guide tube has first and second radially extending swaged portions engaged with the seat back frame for securing the guide tube to the seat back frame.

[The above objects] These and other objects, features, and advantages of the present invention are readily apparent from the following detailed description of the best modes for carrying out the invention when taken in connection with the accompanying drawings.

VERSION WITH MARKINGS TO SHOW CHANGES MADE THE ABSTRACT

[The present invention provides an apparatus for supporting a seat back in a vehicle comprising an aluminum I-beam formed in a generally U-shaped configuration, and having opposing ends supported with respect to the vehicle for forming a seat back frame. Also provided is a method of manufacturing a vehicle seat back frame, comprising: a) extruding an aluminum I-beam; b) cutting the I-beam to a desired length; c) age-hardening the I-beam; and d) bending the I-beam into a substantially U-shaped configuration to form a vehicle seat back frame.] A method of attaching a head rest guide tube to a seat back frame having an aperture extending therethrough includes inserting the guide tube into the aperture, and swaging the guide tube to form a swaged portion engaged with the seat back frame to thereby secure the guide tube to the seat back frame.